



**PATENT APPLICATION  
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re the application of

Docket No: Q87437

Norito DOI, et al.

Appln. No.: 10/531,282

Group Art Unit: 1711

Cofirmation No.: 5063

Examiner: Kruer, Kevin R.

Filed: October 13, 2005

For: ACRYLIC FILM AND LAMINATES THEREOF

**DECLARATION UNDER 37 CFR 1.132**

**MAIL STOP AMENDMENT**  
Commissioner for Patents  
P.O.Box 1450  
Alexandria, VA 22313-1450

Sir,

I, Kimihide Nishimura, residing at 9-2-6-101, Yokoo, Suma-ku, Kobe, Hyogo, Japan  
declare and state:

1. I graduated from the Department of Chemistry and Materials Technology,  
Faculty of Engineering and Design, Kyoto Institute of Technology, Kyoto, Japan in the year  
1997, and received the degree of Chemistry and Materials Technology from Kyoto Institute of  
Technology graduate school, Kyoto, Japan in the year 1999;
2. Since 1999, I have been employed in KANEKA CORPORATION;
3. From 2002 I have been engaged in research and development of acrylic films;

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4. I have read and am familiar with the above-identified application no.10/531,282 for United States Letters Patent and Office Action thereto mailed March 28, 2006; and

5. I have conducted the following experiments in order to prove that compositions according to the invention described in the present specification which satisfy the relation  $0.0025d \leq w \leq 0.0045d$  have excellent stress-whitening resistance when a film is folded three times.

Experiments

(1) Preparation of new polymers

New polymers 1 to 5 were prepared in the same manner as Reference Examples 1 to 18 in the present specification, except that monomer mixtures shown in Table 1 below were used.

Table 1

		Reference Example				
		New 1	New 2	New 3	New 4	New 5
Monomer mixture (a)	OSA (parts)	0.3	0.5	0.15	0.25	0.52
	(parts)	18	18	20	20	18
	BA (%)	90	90	90	90	90
	MMA (%)	8	7.4	5	8	8
	AMA (%)	2	2.6	5	2	2
Monomer mixture (b)	CHP (parts)	0.06	0.06	0.06	0.06	0.06
	(parts)	82	82	80	80	82
	BA (%)	10	10	10	10	10
	MMA (%)	90	90	90	90	90
	CHP (parts)	0.30	0.30	0.30	0.30	0.30
	tDM (parts)	0.30	0.30	0.30	0.30	0.30

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Particle sizes of the acrylic ester rubber polymers are shown in Table 2 below. In Table 2, w is a cross-linking agent content in the acrylic ester rubber polymer. If w satisfies equation (1) below (present claim 1), the column of "Relationship w and d" is filled with "(1)". If w does not satisfy equation (1), but satisfies equation (2)"(original claim 1), the column with "Relationship w and d" is filled with "(2) not (1)".

$$0.0025d \leq w \leq 0.0045d \quad (1)$$

$$0.002d \leq w \leq 0.005d \quad (2)$$

(2) Preparation of films and evaluation of Stress-whitening resistance

Preparation of films and evaluation of stress-whitening resistance were performed in the same manner as Examples 1 to 17 in the specification of the present invention. The evaluation method of 3 times fold stress-whitening resistance is as follows.

A test film was folded in two, and held down firmly with fingers to give it a fold. Then the fold was turned inside out in order that a convex surface becomes a concave surface. The fold was turned inside out one more time. Then the whitening occurring on the film was observed and evaluated based on the same criteria as Examples 1 to 17 in the specification of the present invention.

Results of stress-whitening resistances are shown in Table 2 below.

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Table 2

Example	Particle size d	0.0020d 0.0025d 0.0045d 0.0050d				w (wt%)	Relationship w and d	Relationship Stress-whitening resistance	
		(Å)						1 time fold	3 times fold
8, 14	800	1.60	2.00	3.60	4.00	3.00	(1)	O	O
18	800	1.60	2.00	3.60	4.00	2.60	(1)	O	O
New 1	750	1.50	1.88	3.38	3.75	2.00	(1)	O	O
10	1200	2.40	3.00	5.40	6.00	2.60	(2) not (1)	Δ	X
21,23	780	1.56	1.95	3.51	3.90	3.80	(2) not (1)	O	X
New 2	570	1.14	1.43	2.57	2.85	2.60	(2) not (1)	Δ	X
New 3	1100	2.20	2.75	4.95	5.50	5.00	(2) not (1)	O	X
New 4	1000	2.00	2.50	4.50	5.00	2.00	(2) not (1)	O	X
New 5	440	0.88	1.10	1.98	2.20	2.00	(2) not (1)	O	X

Stress-whitening resistance

O: No whitening is observed on the fold.

Δ: Opaque white (slight whitening) is observed on part of the fold.

X: Whitening is significant.

Results and Discussion

As shown in Table 2, the films in which cross-linking agent content w is within a range  $0.0025d \leq w \leq 0.0045d$  have improved and unexpected excellent stress-whitening resistance compared to the films in which cross-linking agent content w is within the range  $0.002d \leq w \leq 0.005d$  and outside the range  $0.0025d \leq w \leq 0.0045d$ .

The undersigned declares further that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of

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the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

This 21 day of August 2006

Kimihide Nishimura

Kimihide NISHIMURA